REMARKS

Status of the Application:

Claims 1–41 are the claims of record of the application. Claims 1–41 have been rejected.

Telephone Interview on April 10, 2006

Applicants and the undersigned appreciate Examiner's attention and courtesy during the telephone interview held April 10, 2006 between the Examiner and the undersigned. The invention, the Kang prior art, and the rejections were discussed. Agreement was reached during the interview that the claim 1 as amended herein is not disclosed or suggested by the cited prior art, and would be allowable.

Amendment to the Specification

Applicants have amended the specification to correct a minor error. No new matter is being added.

Amendment to the Claims:

Applicants have amended the claims to overcome Examiner's rejection, and also, in many cases, to correct minor errors not related to any prior art. Three new dependent claims are being added and are disclosed in the specification.

Claim Rejections -35 USC § 102 and 35 USC § 103

In paragraph 1 of the office action, claims 1–5, 7, 8, 11–21, 28–32 and 34–41 were rejected under 35 USC 102(a) as being anticipated by Kang et al. (U.S. Patent 6,498,927).

In paragraph 2 of the office action, claims 6, 9, 10, 24 and 33 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kang et al. (US 6,498,927).

Claim 25 was rejected under 35 U.S.C. 103(a) as being unpatentable over Kang et al. (US 6,498,927) with a view to Katsura et al. (US 6,373,907).

Claims 26 and 27 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kang et al. (US 6,498,927) with a view to Kishimoto et al. (US 2002/0118724).

Difference between Kang and Applicants' invention

Kang's system is described in FIG. 8 and the description thereof. The operation is described in FIGS. 9, 10A, and 10B when the gain is adjusted down as a result of

a demodulated signal that is too high, and FIGS. 11, 12A, and 120B when the gain is adjusted up as a result of a demodulated signal that is too low.

Kang's system, like applicants' invention, includes power measurement at various points in the receive path, and a controller to set the gains.

In Kang, the controller sets the gain in a multi-step process to achieve maximum output power levels. In Applicant's invention, the gains are initially set to a predetermined value, and the AGC is designed to achieve some desired output power levels designed to maximize the signal-to-noise-and-distortion (SINAD) at the end of the respective stages.

in Kang, a one-bit (up/down) signal 886 is generated at the baseband modem 874 as a result of a signal being too high or too low, and this then causes each stage to adjust its gain by some pre-determined gain step size. The gain setting may take several such steps. Applicants' invention, while also allowing for multi-step gain adjusting, does not adjust individual gains by a predetermined gain step size, but rather adjusts each respective gain in one go by an amount that depends on the difference between the measure multi-bit power level and a desired power level, which is not necessarily the maximum power level, but rather the power level that will achieve desirable SINAD.

Kang only provides for achieving gain control by using the modem post the ADC 876) to provide the UP/DOWN signal 886. See, for example, col. 13, lines 52 to 3: **"Since the gain control is only activated by a baseband modem, stability is not an issue."** Applicants' invention sets each gain element's gain according to the measured output level of the relevant stage, e.g., according to the difference between the measured output power of the relevant stage, and a desired power level at the out put of the stage. As an example, consider Applicant's first power setting stage shown FIG. 2 as the gain of 204, denoted G_rx_rf_if. In one embodiment, this gain is determined by the values of RSSI-IF-dBm and RSSI-BB_dBm, in particular their difference. Note that the ADC is not involved. Furthermore, as described in paragraph [0044], a stage includes simultaneously adjusting the gains of the pre-filter element and the IF element in order to bring the ADC's inputs to range. For this, the ADC is not involved.

Kang control, as described in the flowcharts of FIG. 9 and FIG. 11, adjusts each gain element one at a time. Initially, all gains are set so that the overall gain is maximum. Each stages output power is measured, and a one-bit (up/down) signal 886 is generated. Assuming the gain is to be lowered, it is determined which stage's gain is to be reduced first, e.g., starting from the stage closest to the antenna. That stage's gain is reduced by a step size, and now the process returns to the measuring of the power outputs then to generating the one-bit output.

In Applicants' invention, there if no time for so many steps. Firstly, more than one gain is set in each step, so that there can be only one step. Secondly, the amount of change of gain is whatever is required to achieve the desired result. In one embodiment, the amount of adjustment is according to how much out-of-band interference is present as measured by pre-filter and post-filter power measurements, and in another, the amount is according to difference between a desired level and the measured level in order to bring the outputs to desired levels.

The independent claims:

With respect to **independent claims 1, 11**, **15, 30, 38**, and **40,** these claims have been amended to include features not in Kang. Claim 1 now includes pre-filter and post signal strength detectors, each having an output coupled to an analog-to-digital converter and a calibrator to provide a respective multi-bit calibrated measure of the relative strength of the signal at respective pre and post-filtering points. Such signal strength detectors are not described or disclosed in Kang.

Furthermore, the setting of the gains is now being to respectively set the pre-filter signal strength and the first post-filter signal strength to a desired pre-filter signal power and a desired first post-filter signal power, respectively. Kang, as discussed above, describes setting the powers to a maximum level.

Claim 1 now includes an ADC configured to convert the output of the last analog section in the receiver signal path. Furthermore, the gain settings of the pre-filter and first post filter variable gain elements does not use the digital output signal of the ADC. Kang always uses the baseband modem, in particular, up/down signal 886 to provide for changing of the gains.

Therefore, claim 1 as amended is not disclosed or suggested by Kang.

Dependent claims 2–10 and new claim **42** are dependent on claim 1, and therefore are also allowable over Kang.

Independent claim 11 has been amended to include parallel features, so claim 11 is now allowable over Kang.

Dependent claims 12–14 are dependent on claim 11, and therefore also are allowable over Kang.

Independent claim 15 also has been amended to include the ADC, the adjusting to be to respectively set the signal strength at respective outputs of the sections to respective desired levels, and that the gain adjusting of at least the first section does not use the digital output signal from the ADC. These features are not taught by Kang. Therefore claim 15 is allowable over Kang.

Dependent claims 16–29 (as amended) and new claims **43** and **44** are dependent on now-allowable claim 15, so are also allowable over Kang.

Independent claim 30 also has been amended to include parallel features, so claim 30 is now allowable over Kang.

Dependent claims 31–37 (as amended) are dependent on now-allowable claim 30, so are also allowable over Kang.

Independent claim 38 also has been amended to include parallel features, so claim 38 is now allowable over Kang.

Dependent claim 39 (as amended) is dependent on now-allowable claim 38, so are also allowable over Kang.

Independent claim 40 also has been amended to include parallel features, so claim 40 is now allowable over Kang.

Dependent claim 41 (as amended) is dependent on now-allowable claim 40, so are also allowable over Kang.

Some dependent claims

Even if the Examiner is not convinced by the argument on the independent claims, many dependent claims include features not disclosed by Kang, and not obvious because of Kang in view of other cited prior art.

Claims dependent on independent claim 1 will be used as examples.

With respect to claim 4, even if the Examiner is not convinced by the argument on claim 1, claim 4 discloses each stage setting the gains of one or more sections to achieve desired signal strength levels including the desired pre-filter signal strength level and a desired post-filter signal strength levels, the adjustment of each section being by a variable amount that depends on the calibrated measures of the relative strength. Kang's sequential steps only adjust one section at a time. Furthermore, Kang's changes are by a fixed step size. Therefore, claim 4 is allowable over Kang even if its parent claim is not.

With respect to claim 7, Kang does not disclose that the desired pre-filter signal power and a desired post-filter signal power are selected in order to maximize the signal-to-noise-and-distortion at the end of the respective stages, e.g., as indicated by the detected signal strength values. Therefore, claim 7 is allowable over Kang even if its parent claim(s) is/are not.

With respect to claim 8, Kang does not disclose the first stage setting the gain of the pre-filter section and first post filter section to bring the input of ADC to within the range of the ADC. In fact, Kang's setting of the gains depends on the ADC's output. Therefore, claim 8 is allowable over Kang even if its parent claim(s) is/are not.

With respect to claim 5, Kang does not disclose setting the gain of the first post filter section according to both the pre-filter signal strength indication and the first post-filter signal strength indication. Therefore, claim 4 is allowable over Kang even if its parent claim(s) is/are not.

Note that because of the above, all claims are believed allowable, and therefore, the Examiner's rejection under 25 USC 103, all including Kang, are now considered moot. Without agreeing to the correctness of the Examiner's arguments, and reserving the right to argue such correctness, Applicants are choosing not to deal with the rejections under 35 USC 103.

As argued above, all claims are now allowable over the cited prior art. Allowance thereof is respectfully requested.

Conclusion

The Applicants believe all of Examiner's rejections have been overcome with respect to all remaining claims (as amended), and that the remaining claims are allowable. Action to that end is respectfully requested.

If the Examiner has any questions or comments that would advance the prosecution and allowance of this application, an email message to the undersigned at dov@inventek.com, or a telephone call to the undersigned at +1-510-547-3378 is requested.

Respectfully Submitted,

_____April 10, 2006_____   _____/Dov Rosenfeld/ #38687_____
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